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209712 58-74/MAC  
L1 2437 SB 58-74/MAC  
(SB/MAC (P) 58-74/MAC)

=> s ge 2-10/mac  
15630 GE/MAC  
535424 2-10/MAC  
L2 5054 GE 2-10/MAC  
(GE/MAC (P) 2-10/MAC)

=> s te 12-25/mac  
11137 TE/MAC  
308494 12-25/MAC  
L3 1497 TE 12-25/MAC  
(TE/MAC (P) 12-25/MAC)

=> s te 10-35/mac  
11137 TE/MAC  
418987 10-35/MAC  
L4 2643 TE 10-35/MAC  
(TE/MAC (P) 10-35/MAC)

=> s l1 and l2 and l4  
L5 310 L1 AND L2 AND L4

=> s l5 and mn/mac  
354351 MN/MAC  
L6 18 L5 AND MN/MAC

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USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
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<http://www.cas.org/infopolicy.html>

=> s 15  
L7 136 L5

=> s 16  
L8 7 L6

=> d all 1-7

L8 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 2006:340548 CAPLUS <<LOGINID::20061024>>  
DN 144:379214  
ED Entered STN: 13 Apr 2006  
TI Phase-changeable optical recording materials with heat diffusion layer  
IN Shibata, Kiyoto; Yuzuhara, Hajime; Hanaoka, Katsushige; Kaneko, Yujiro  
PA Ricoh Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 19 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

FAN.CNT 1

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE     |
|------|----------------|------|----------|-----------------|----------|
| PI   | JP 2006099927  | A2   | 20060413 | JP 2005-123702  | 20050421 |
| PRAI | JP 2004-256266 | A    | 20040902 |                 |          |

CLASS

|  | PATENT NO.    | CLASS | PATENT FAMILY CLASSIFICATION CODES   |
|--|---------------|-------|--|
|  | JP 2006099927 | IPCI  | G11B0007-24 [I,A]; G11B0007-243 [I,A]; G11B0007-258 [I,A]  |
|  |               | FTERM | 5D029/JA01; 5D029/JB11; 5D029/KB12; 5D029/LC17;<br>5D029/MA13; 5D029/MA14; 5D029/MA27; 5D029/WA02;<br>5D029/WB11; 5D029/WB17 |

AB The material, using cryst. and amorphous phase-change by light irradn.,  
comprises a pre-grooved substrate successively having (A) an amorphous  
heat-diffusion layer, (B) 1st protective layer, (C) a recording layer, (D)  
2nd protective layer, and (E) a reflection layer, in which the thermal  
cond. of A is higher than that of B. Alternatively, the material  
comprises the pre-grooved substrate successively having E, D, C, B, and A.  
The material is suited for blue light (e.g., 405 nm) and good recording  
and reading properties.

ST phase changeable optical recording material amorphous heat diffusion  
layer; thermal cond protective layer heat diffusion layer

IT Optical recording materials

(phase-changeable optical recording materials with heat diffusion  
layer)

IT 183144-78-7, Indium zinc oxide (In1.36Zn0.32O2.36) 731855-00-8, Indium  
zinc oxide (In1.45Zn0.27O2.45)

RL: TEM (Technical or engineered material use); USES (Uses)  
(heat-diffusion layer; phase-changeable optical recording materials  
with heat diffusion layer)

IT 882071-87-6, Silicon zinc oxide sulfide (Si0.29Zn0.71O0.58S0.71)

882071-88-7, Silicon zinc oxide sulfide (Si0.41Zn0.59O0.82S0.59)

RL: TEM (Technical or engineered material use); USES (Uses)  
(protective layer; phase-changeable optical recording materials with  
heat diffusion layer)

IT 384829-24-7 384829-32-7 882071-89-8 882071-90-1 882071-91-2

\*\*\*882071-92-3\*\*\* 882071-93-4 882071-94-5 882071-95-6

882071-96-7 \*\*\*882071-97-8\*\*\*

RL: TEM (Technical or engineered material use); USES (Uses)  
(recording layer; phase-changeable optical recording materials with  
heat diffusion layer)

IT 52864-21-8

RL: TEM (Technical or engineered material use); USES (Uses)  
(reflection layer; phase-changeable optical recording materials with

heat diffusion layer)

L8 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 2004-877898 CAPLUS <<LOGINID::20061024>>  
DN 141:372852  
ED Entered STN: 22 Oct 2004  
TI Optical recording medium comprising antimony germanium manganese tellurium alloy  
IN Shingai, Hiroshi; Kato, Tatsuya; Hirata, Hideki  
PA TDK Corporation, Japan  
SO U.S. Pat. Appl. Publ., 17 pp.  
CODEN: USXXCO  
DT Patent  
LA English  
IC ICM G11B007-24  
INCL 369059110; 369288000; 369283000; 369047530; 369094000  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE     |
|------|----------------|------|----------|-----------------|----------|
| PI   | US 2004208105  | A1   | 20041021 | US 2004-824081  | 20040414 |
|      | JP 2004319033  | A2   | 20041111 | JP 2003-113550  | 20030418 |
| PRAI | JP 2003-113550 | A    | 20030418 |                 |          |

CLASS

|  | PATENT NO.    | CLASS | PATENT FAMILY CLASSIFICATION CODES   |
|--|---------------|-------|--|
|  | US 2004208105 | ICM   | G11B007-24   |
|  |               | INCL  | 369059110; 369288000; 369283000; 369047530; 369094000  |
|  |               | IPCI  | G11B0007-24 [ICM,7]  |
|  |               | IPCR  | B41M0005-26 [I,C*]; B41M0005-26 [I,A]; G11B0007-00 [I,C*]; G11B0007-0045 [I,A]; G11B0007-125 [I,C*]; G11B0007-125 [I,A]; G11B0007-24 [I,C*]; G11B0007-24 [I,A]; G11B0007-243 [I,A]; G11B0007-257 [I,A]; G11B0007-258 [I,A]   |
|  |               | NCL   | 369/059.110; 369/047.530; 369/094.000; 369/283.000; 369/288.000  |
|  |               | ECLA  | G11B007/243; G11B007/257   |
|  | JP 2004319033 | IPCI  | G11B0007-24 [ICM,7]; B41M0005-26 [ICS,7]; G11B0007-0045 [ICS,7]; G11B0007-00 [ICS,7,C*]; G11B0007-125 [ICS,7]  |
|  |               | IPCR  | G11B0007-00 [N,C*]; G11B0007-0045 [N,A]  |
|  |               | FTERM | 2H111/EA04; 2H111/EA23; 2H111/FA01; 2H111/FA12; 2H111/FA18; 2H111/FA21; 2H111/FA23; 2H111/FA28; 2H111/FB05; 2H111/FB09; 2H111/FB12; 2H111/FB16; 2H111/FB30; 5D029/HA06; 5D029/JA01; 5D029/JB18; 5D029/LB04; 5D029/LB07; 5D029/MA13; 5D029/MA27; 5D090/AA01; 5D090/BB05; 5D090/CC01; 5D090/DD01; 5D090/EE01; 5D090/EE05; 5D090/HH01; 5D090/KK03; 5D789/AA24; 5D789/BA01; 5D789/BB03; 5D789/DA01; 5D789/EC09 |

AB An optical recording medium includes a recording layer, a first dielec. layer disposed on the side of a light incidence plane through which the laser beam enters with respect to the recording layer, a second dielec. layer disposed on the side opposite to the light incidence plane with respect to the recording layer, a heat radiation layer disposed on the side of the light incidence plane with respect to the first dielec. layer and a reflective layer disposed on the side opposite to the light incidence plane with respect to the second dielec. layer, the recording layer contg. a phase change material represented by an at. compn. formula: SbaTebGecMnd, where 55 .ltoreq. a .ltoreq. 70; 4 .ltoreq. c .ltoreq. 10, 10 .ltoreq. d .ltoreq. 20; 2.8 .ltoreq. a/b .ltoreq. 3.5; 3.0 .ltoreq. a/d .ltoreq. 6.0; in an amt. .gtoreq. 95 at.%. According to the thus constituted optical recording medium, it is possible to simultaneously improve characteristics of recording data at a high linear velocity, data reprodn. durability and storage reliability.

ST optical recording disk antimony tellurium germanium manganese alloy  
IT Optical disks

(optical recording medium)

IT 24304-00-5, Aluminum nitride 58739-36-9 178255-68-0, Silicon zinc oxide sulfide (Si0.1Zn0.400.2S0.4) 302919-35-3, Silicon zinc oxide sulfide (SiZnO2S) \*\*\*777941-64-7\*\*\* \*\*\*777941-65-8\*\*\*  
\*\*\*777941-67-0\*\*\* 777941-68-1 \*\*\*777941-69-2\*\*\*

\*\*\*777941-71-6\*\*\*

RL: TEM (Technical or engineered material use); USES (Uses)  
      (optical recording medium)

L8 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 2004:472700 CAPLUS <<LOGINID::20061024>>  
DN 141:31146  
ED Entered STN: 11 Jun 2004  
TI Phase change optical recording medium containing mixture of zirconium oxide and zinc sulfide  
IN Abe, Mikiko; Yuzuhara, Hajime; Suzuki, Eiko; Deguchi, Hiroshi; Miura, Hiroshi  
PA Ricoh Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 12 pp.  
      CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM G11B007-24  
      ICS B41M005-26  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE     |
|------|----------------|------|----------|-----------------|----------|
| PI   | JP 2004164806  | A2   | 20040610 | JP 2002-373624  | 20021225 |
| PRAI | JP 2002-278185 | A    | 20020924 |                 |          |

CLASS

| PATENT NO.    | CLASS | PATENT FAMILY CLASSIFICATION CODES   |
|---------------|-------|--|
| JP 2004164806 | ICM   | G11B007-24   |
|               | ICS   | B41M005-26   |
|               | IPCI  | G11B0007-24 [ICM, 7]; B41M0005-26 [ICS, 7]   |
|               | IPCR  | B41M0005-26 [I, A]; B41M0005-26 [I, C*]; G11B0007-24 [I, A]; G11B0007-24 [I, C*]   |
|               | FTERM | 2H111/EA04; 2H111/EA23; 2H111/FA01; 2H111/FA11; 2H111/FA12; 2H111/FA14; 2H111/FA21; 2H111/FA23; 2H111/FA25; 2H111/FA27; 2H111/FB05; 2H111/FB09; 2H111/FB12; 2H111/FB16; 2H111/FB17; 2H111/FB20; 2H111/FB21; 2H111/FB30; 5D029/JA01; 5D029/JB18; 5D029/LA13; 5D029/LA17; 5D029/LA19; 5D029/LB07; 5D029/LB11; 5D029/MA13 |

AB Disclosed is the phase change optical recording medium comprising a 1st protective layer, a phase change recording layer, a 2nd protective layer, and a reflection layer in the order on a translucent substrate, wherein a thin film layer with a thickness 1-10 nm made from a mixt of ZrO<sub>2</sub> and ZnS is formed between the recording layer and the 1st protective layer or between the recording layer and the 2nd protective layer. The recording layer is made from GeaSbbTe1-a-b (0.03.1toreq.a.1toreq.0.07; and 0.65.1toreq.b.1toreq.0.85).

ST phase change optical recording disk zirconium oxide zinc sulfide

IT Optical disks

(phase change optical recording medium contg. mixt. of zirconium oxide and zinc sulfide)

IT 1314-23-4, Zirconia, uses 1314-98-3, Zinc sulfide, uses 7440-22-4, Silver, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses 700363-73-1 700363-74-2 \*\*\*700363-75-3\*\*\*

RL: DEV (Device component use); USES (Uses)

(phase change optical recording medium contg. mixt. of zirconium oxide and zinc sulfide)

L8 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:118546 CAPLUS <<LOGINID::20061024>>

DN 140:190044

ED Entered STN: 13 Feb 2004

TI Phase-change optical recording media such as optical disk and method for recording thereon

IN Yuzuhara, Hajime; Abe, Mikiko; Deguchi, Hiroshi; Miura, Hiroshi; Suzuki, Eiko

PA Ricoh Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 18 pp.

      CODEN: JKXXAF

DT Patent

LA Japanese  
IC ICM G11B007-24  
, ICS B41M005-26; G11B007-0045; G11B007-125  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

FAN.CNT 1

| PATENT NO.          | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------------|------|----------|-----------------|----------|
| PI JP 2004046956    | A2   | 20040212 | JP 2002-201667  | 20020710 |
| PRAI JP 2002-201667 |      | 20020710 |                 |          |

CLASS

| PATENT NO.    | CLASS | PATENT FAMILY CLASSIFICATION CODES   |
|---------------|-------|--|
| JP 2004046956 | ICM   | G11B007-24   |
|               | ICS   | B41M005-26; G11B007-0045; G11B007-125  |
|               | IPCI  | G11B0007-24 [ICM,7]; B41M0005-26 [ICS,7]; G11B0007-0045<br>[ICS,7]; G11B0007-00 [ICS,7,C*]; G11B0007-125 [ICS,7]   |
|               | IPCR  | B41M0005-26 [I,C*]; B41M0005-26 [I,A]; G11B0007-00<br>[I,C*]; G11B0007-0045 [I,A]; G11B0007-125 [I,C*];<br>G11B0007-125 [I,A]; G11B0007-24 [I,C*]; G11B0007-24<br>[I,A]; G11B0007-241 [I,A]; G11B0007-243 [I,A];<br>G11B0007-254 [I,A]; G11B0007-257 [I,A]; G11B0007-258<br>[I,A]  |
|               | FTERM | 2H111/EA04; 2H111/EA23; 2H111/EA31; 2H111/EA36;<br>2H111/FA01; 2H111/FA11; 2H111/FA12; 2H111/FA14;<br>2H111/FA21; 2H111/FA23; 2H111/FA24; 2H111/FA25;<br>2H111/FA27; 2H111/FB05; 2H111/FB09; 2H111/FB12;<br>2H111/FB16; 2H111/FB17; 2H111/FB21; 2H111/FB30;<br>5D029/JA01; 5D029/JB18; 5D029/JC20; 5D029/LA14;<br>5D029/LA15; 5D029/LB01; 5D029/LB04; 5D029/MA13;<br>5D029/NA13; 5D090/AA01; 5D090/BB05; 5D090/CC01;<br>5D090/DD01; 5D090/EE01; 5D090/HH01; 5D090/KK03;<br>5D090/KK05; 5D119/AA21; 5D119/AA24; 5D119/BA01;<br>5D119/BB04; 5D119/DA01; 5D119/DA02; 5D119/DA07;<br>5D119/EC09; 5D119/HA45; 5D119/HA52; 5D789/AA21;<br>5D789/AA24; 5D789/BA01; 5D789/BB04; 5D789/DA01;<br>5D789/DA02; 5D789/DA07; 5D789/EC09; 5D789/HA45;<br>5D789/HA52 |

AB The title medium has a first dielec. protective layer, a phase-change recording layer, a second dielec. protective layer, and a reflective layer on a substrate, wherein the upper linear velocity(Vcu) of recrystn. of the recording layer is between max. recording linear velocity and min. recording linear velocity and satisfies equation:  
(Vmax.+Vmin.)/2 < Vcu < {(Vmax.+Vmin.)/2}+3. The medium is for high linear speed recording and also is suitable for low speed recording.

ST optical recording media phase change

IT Erasable optical disks

(phase-change; optical recording media and method for recording using the same)

IT 657403-84-4 657403-85-5 657403-86-6 657403-87-7 657403-88-8  
657403-89-9 \*\*\*657403-90-2\*\*\* \*\*\*657403-91-3\*\*\* 657403-92-4  
657403-93-5 \*\*\*657403-94-6\*\*\* 657403-95-7

RL: DEV (Device component use); USES (Uses)

(phase-change recording layer of optical recording media)

L8 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 2003:945325 CAPLUS <<LOGINID::20061024>>

DN 140:10702

ED Entered STN: 04 Dec 2003

TI Phase-changeable optical recording material containing antimony and tellurium

IN Shinkai, Hiroshi; Utsunomiya, Hajime

PA TDK Corporation, Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM B41M005-26

ICS G11B007-004; G11B007-24

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

FAN.CNT 1

| PATENT NO.          | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------------|------|----------|-----------------|----------|
| PI JP 2003341230    | A2   | 20031203 | JP 2002-151744  | 20020527 |
| PRAI JP 2002-151744 |      | 20020527 |                 |          |

CLASS

| PATENT NO.    | CLASS | PATENT FAMILY CLASSIFICATION CODES   |
|---------------|-------|--|
| JP 2003341230 | ICM   | B41M005-26   |
|               | ICS   | G11B007-004; G11B007-24  |
|               | IPCI  | B41M0005-26 [ICM,7]; G11B0007-004 [ICS,7]; G11B0007-00<br>[ICS,7,C*]; G11B0007-24 [ICS,7]  |
|               | IPCR  | B41M0005-26 [I,C*]; B41M0005-26 [I,A]; G11B0007-00<br>[I,C*]; G11B0007-004 [I,A]; G11B0007-24 [I,C*];<br>G11B0007-24 [I,A]; G11B0007-243 [I,A] |

AB SbTe (mainly contg. Sb) phase changeable optical recording material contains an element, in which the difference of electronegativity between the element and Te is  $\geq 0.5$ . The material contains an element with electronegativity  $\leq 1.6$ . The material is suited for high speed recording and shows good storage stability.

ST phase changeable optical recording material antimony tellurium; electronegativity element tellurium antimony optical recording

IT Optical recording materials  
(phase-changeable optical recording material contg. antimony, tellurium, and element with controlled electronegativity)

IT 627877-20-7

RL: DEV (Device component use); USES (Uses)  
(phase-changeable optical recording material contg. antimony, tellurium, and element with controlled electronegativity)

IT \*\*\*627877-16-1\*\*\* \*\*\*627877-17-2\*\*\* 627877-18-3 627877-19-4  
627877-21-8 627877-22-9 627877-23-0 627877-24-1 627877-25-2  
627877-26-3 627877-27-4 627877-28-5 627877-29-6 627877-30-9  
627877-31-0 627877-32-1 627877-33-2 627877-34-3 627877-35-4  
627877-36-5

RL: DEV (Device component use); USES (Uses)  
(phase-changeable optical recording material contg. antimony, tellurium, and element with controlled electronegativity)

L8 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2003:794100 CAPLUS <<LOGINID::20061024>>

DN 139:314564

ED Entered STN: 10 Oct 2003

TI Erasable phase-change optical recording media for high-speed writing with no initialization required

IN Miura, Hiroshi; Shinkai, Masaru; Shibata, Kiyoto; Harigai, Masato;  
Hanaoka, Katsushige

PA Ricoh Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G11B007-24

ICS B41M005-26

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

| PATENT NO.         | KIND | DATE     | APPLICATION NO. | DATE     |
|--------------------|------|----------|-----------------|----------|
| PI JP 2003288737   | A2   | 20031010 | JP 2002-130158  | 20020501 |
| PRAI JP 2002-17389 | A    | 20020125 |                 |          |

CLASS

| PATENT NO.    | CLASS | PATENT FAMILY CLASSIFICATION CODES  |
|---------------|-------|---|
| JP 2003288737 | ICM   | G11B007-24  |
|               | ICS   | B41M005-26  |
|               | IPCI  | G11B0007-24 [ICM,7]; B41M0005-26 [ICS,7]  |
|               | IPCR  | B41M0005-26 [I,C*]; B41M0005-26 [I,A]; G11B0007-24<br>[I,C*]; G11B0007-24 [I,A]; G11B0007-243 [I,A] |

AB The recording medium has (A) a recording layer contg. Sb, Te, and optionally other elements selected from Group I to VII and (B) other layers contg. crystn. accelerators, wherein the crystn. accelerators diffuse into the recording layer by energy irradn. of writing processes.

ST phase change optical disk initialization free; erasable optical recording

IT medium antimony telluride  
 IT Erasable optical disks  
     (erasable phase-change optical disks for high-speed writing with no initialization required)  
 IT 610269-84-6 610269-85-7 610269-86-8 610269-87-9 610269-88-0  
 610269-89-1  
 RL: DEV (Device component use); USES (Uses)  
     (crystn. accelerating layer contg.; erasable phase-change optical disks for high-speed writing with no initialization required)  
 IT 610269-91-5 610269-92-6 610269-93-7 610269-94-8 610269-95-9  
 610269-96-0 \*\*\*610269-97-1\*\*\* \*\*\*610269-98-2\*\*\*  
 RL: DEV (Device component use); FMU (Formation, unclassified); FORM (Formation, nonpreparative); USES (Uses)  
     (formed by recording processes; erasable phase-change optical disks for high-speed writing with no initialization required)  
 IT 124307-63-7, Antimony 80, tellurium 20 (atomic) 610269-90-4  
 RL: DEV (Device component use); USES (Uses)  
     (recording layer; erasable phase-change optical disks for high-speed writing with no initialization required)  
 IT 7440-42-8, Boron, uses 7440-44-0, Carbon, uses 7440-74-6, Indium, uses 7727-37-9, Nitrogen, uses  
 RL: DEV (Device component use); USES (Uses)  
     (recording stabilizer; erasable phase-change optical disks for high-speed writing with no initialization required)

L8 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2002:904454 CAPLUS <<LOGINID::20061024>>

DN 138:9714

ED Entered STN: 29 Nov 2002

TI Optical recording medium and recording method

IN Harigaya, Makoto; Miura, Hiroshi; Okura, Hiroko; Mizutani, Miku; Hibino, Eiko; Yuzurihara, Hajime; Kageyama, Yoshiyuki; Abe, Mikiko; Deguchi, Hiroshi; Ito, Kazunori

PA Ricoh Company Ltd., Japan

SO Eur. Pat. Appl., 32 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM G11B007-24

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 56

FAN.CNT 1

|      | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---|------|----------|-----------------|----------|
| PI   | EP 1260973  | A2   | 20021127 | EP 2002-11189   | 20020521 |
|      | EP 1260973  | A3   | 20030716 |                 |          |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR |      |          |                 |          |
|      | JP 2003305955   | A2   | 20031028 | JP 2002-113269  | 20020416 |
|      | US 2003012917   | A1   | 20030116 | US 2002-151324  | 20020520 |
|      | US 6770346  | B2   | 20040803 |                 |          |
|      | EP 1686575  | A2   | 20060802 | EP 2006-10396   | 20020521 |
|      | EP 1686575  | A3   | 20060920 |                 |          |
|      | R: DE, FR, GB, SI, LT, LV, RO, MK, AL   |      |          |                 |          |
|      | EP 1703497  | A2   | 20060920 | EP 2006-10397   | 20020521 |
|      | R: DE, FR, GB   |      |          |                 |          |
| PRAI | JP 2001-151129  | A    | 20010521 |                 |          |
|      | JP 2001-290036  | A    | 20010921 |                 |          |
|      | JP 2002-35131   | A    | 20020213 |                 |          |
|      | JP 2002-113269  | A    | 20020416 |                 |          |
|      | EP 2002-11189   | A3   | 20020521 |                 |          |

CLASS

|  | PATENT NO. | CLASS | PATENT FAMILY CLASSIFICATION CODES   |
|--|------------|-------|--|
|  | EP 1260973 | ICM   | G11B007-24   |
|  |            | IPCI  | G11B0007-24 [ICM, 6]   |
|  |            | IPCR  | B41M0005-26 [I, C*]; B41M0005-26 [I, A]; G11B0007-00 [I, C*]; G11B0007-0045 [I, A]; G11B0007-006 [I, A]; G11B0007-125 [I, C*]; G11B0007-125 [I, A]; G11B0007-24 [I, C*]; G11B0007-24 [I, A]; G11B0007-243 [I, A]; G11B0007-254 [I, A]; G11B0007-257 [I, A]; G11B0007-258 |

|               |      |   |
|---------------|------|---|
|               |      | [I,A]   |
| JP 2003305955 | ECLA | G11B007/243   |
|               | IPCI | B41M0005-26 [ICM,7]; G11B0007-0045 [ICS,7];<br>G11B0007-006 [ICS,7]; G11B0007-00 [ICS,7,C*];<br>G11B0007-125 [ICS,7]; G11B0007-24 [ICS,7]   |
|               | IPCR | B41M0005-26 [I,C*]; B41M0005-26 [I,A]; G11B0007-00<br>[I,C*]; G11B0007-0045 [I,A]; G11B0007-006 [I,A];<br>G11B0007-125 [I,C*]; G11B0007-125 [I,A]; G11B0007-24<br>[I,C*]; G11B0007-24 [I,A]; G11B0007-243 [I,A];<br>G11B0007-254 [I,A]; G11B0007-257 [I,A]; G11B0007-258<br>[I,A] |
| US 2003012917 | IPCI | B32B0003-02 [ICM,7]   |
|               | IPCR | G11B0007-24 [I,C*]; G11B0007-243 [I,A]  |
|               | NCL  | 428/064.400   |
|               | ECLA | G11B007/243   |
| EP 1686575    | IPCI | G11B0007-24 [I,A]; G11B0007-0045 [I,A]; G11B0007-006<br>[I,A]; G11B0007-00 [I,C*]; G11B0007-24 [N,A]  |
|               | ECLA | G11B007/006S  |
| EP 1703497    | IPCI | G11B0007-00 [I,A]   |
|               | ECLA | G11B007/006S  |

AB An optical recording medium is described comprising a recording layer contg. a phase-change recording material causing a reversible phase change between a cryst. phase and an amorphous phase by irradn. with an electromagnetic wave, wherein the phase change material mainly comprises materials expressed by the compn. formula X:Ge:Mn:Sb:Te (.alpha.:beta.:gamma.:delta.:epsilon.) with each of the components resp. fulfills .alpha. = 0-5, .beta. = 1-5, .gamma. = 1-10, .delta. = 65-80, .epsilon. = 15-25, and .alpha. .ltoeq. .gamma. (X = Ga, Sn; .alpha., .beta., .gamma., .delta., .epsilon. expresses at.%, and .alpha. + .beta. + .gamma. + .delta. + .epsilon. = 100). A method for recording to an optical recording medium is also described entailing a step for irradiating a multi-pulse light to form a recording mark having a prescribed length of which a recording time = nT (integer n >2, and T = ref. clock); characterized in that the multi-pulse light comprises a pulse train having; (a) a first heating and a cooling pulse; (b) an intermediate heating and a cooling pulse; and (c) a last heating and a cooling pulse; and when a heating pulse time is expressed as Opi and a cooling pulse time is expressed as Fpi such that a first heating pulse time and a head cooling pulse time of the pulse train are resp. expressed by OP1 and FP1, a last heating pulse time and a last cooling pulse time of the pulse train are resp. expressed by OPm and FPm, one or a plurality of an intermediate heating pulse time and an intermediate cooling pulse time of the pulse train are resp. expressed by OPj and FPj (j=2..., m-1); wherein the no. of pulse m is equal to L when the length of the prescribed recording mark n is 2L (integer L .gtoreq.2) or 2L + 1 (integer L .gtoreq.1); and the length of each pulse part Opi + Fpi (i = 1, ..., m) is substantially two times longer compared to the ref. clock T.

ST optical recording medium method

IT Optical recording

Optical recording materials

Phase change materials

(optical recording medium using phase change materials and recording method)

IT Alloys, uses

RL: DEV (Device component use); USES (Uses)  
(recording media; optical recording medium using phase change materials and recording method)

IT 1309-48-4, Magnesium oxide (MgO), uses 13463-67-7, Titanium oxide (TiO2), uses

RL: DEV (Device component use); USES (Uses)  
(optical recording medium using phase change materials and recording method)

IT 409-21-2, Silicon carbide (SiC), uses 1314-23-4, Zirconium oxide (ZrO2),  
uses 1314-36-9, Yttrium oxide (Y2O3), uses 1314-98-3, Zinc sulfide (ZnS), uses 7440-21-3, Silicon, uses 7631-86-9, Silica, uses 7704-34-9, Sulfur, uses

RL: DEV (Device component use); USES (Uses)  
(protection layer; optical recording medium using phase change materials and recording method)

IT 476485-52-6 476485-53-7 \*\*\*476485-54-8\*\*\* \*\*\*476485-55-9\*\*\*  
\*\*\*476485-57-1\*\*\* 476485-60-6 476485-62-8 476485-65-1  
476485-67-3 476485-69-5 476485-71-9 476485-73-1 476485-75-3

476485-77-5 476485-79-7 476485-81-1 476485-83-3 476485-85-5  
476485-87-7 476485-89-9 476485-92-4 476485-94-6 476485-96-8

476485-98-0 476486-00-7

RL: DEV (Device component use); USES (Uses)

(recording layer; optical recording medium using phase change materials and recording method)

IT 7429-90-5D, Aluminum, alloy 7440-22-4, Silver, uses 476485-51-5

RL: DEV (Device component use); USES (Uses)

(reflection layer; optical recording medium using phase change materials and recording method)

=> s 15 and (mn or manganese)

136 L5

421124 MN

5029 MNS

424057 MN

(MN OR MNS)

364933 MANGANESE

112 MANGANESES

364943 MANGANESE

(MANGANESE OR MANGANESES)

L9 12 L5 AND (MN OR MANGANESE)

=> s 19 not 18

L10 10 L9 NOT L8

=> d all 1-10

L10 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2006:1004518 CAPLUS <>LOGINID::20061024>>

DN 145:366621

ED Entered STN: 28 Sep 2006

TI Dual-layer phase transition optical recording medium with high erase ratio and contrast

IN Hanaoka, Katsushige; Iwasa, Hiroyuki; Shibata, Kiyoto; Kaneko, Yujiro; Yuzuhara, Hajime

PA Ricoh Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 15pp.

CODEN: JKXXAF

DT Patent

LA Japanese

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 56

FAN.CNT 1

|      | PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---------------|------|----------|-----------------|----------|
| PI   | JP 2006256196 | A2   | 20060928 | JP 2005-78700   | 20050318 |
| PRAI | JP 2005-78700 |      | 20050318 |                 |          |

CLASS

|               | PATENT NO. | CLASS  | PATENT FAMILY CLASSIFICATION CODES |
|---------------|------------|--|------------------------------------|
| JP 2006256196 | IPCI       | B41M0005-26 [I,A]; C22C0012-00 [I,A]; G11B0007-24 [I,A]  |                                    |
|               | FTERM      | 2H111/EA04; 2H111/EA23; 2H111/EA37; 2H111/FA12; 2H111/FA14; 2H111/FA17; 2H111/FB05; 2H111/FB06; 2H111/FB09; 2H111/FB10; 2H111/FB12; 2H111/FB16; 2H111/FB17; 2H111/FB19; 2H111/FB20; 2H111/FB21; 2H111/FB23; 5D029/JA01; 5D029/JB03; 5D029/JB05; 5D029/JB08; 5D029/JB37 |                                    |

AB The disclosed recording medium has a 1st information layer (L1) and a 2nd information layer (L2) between substrates for recording and reproducing information by laser irradn. from L1 side, wherein L1 includes a 1st phase transition recording layer having a compn. represented by

Ge.alpha.1Sb.beta.1Te.gamma.1M1.delta.1 (M1 = Ag, In, Sn, V, \*\*\*Mn\*\*\*, Zn, Ga, Dy, Au; 0 < .alpha.1 < 10; 25 < .beta.1 < 40; 0 < .gamma.1 < 10; 0 .ltoreq. .delta.1 < 10; .alpha.1 + .beta.1 + .gamma.1 + .delta.1 = 100 at.%), and L2 includes a 2nd phase transition recording layer having a compn. represented by Ge.alpha.2Sb.beta.2Sn.gamma.2M2.delta.2 (M2 = In, Bi, Te, Ag, V, \*\*\*Mn\*\*\*, Al, Zn, Co, Ni, Cu, Dy, Au; 5 < .alpha.2 < 25; 45 < .beta.2 < 75; 10 < .gamma.2 < 30; 0 .ltoreq. .delta.2 < 15; .alpha.2 + .beta.2 + .gamma.2 + .delta.2 = 100 at.%). The recording

medium has high recording signal quality, and is useful for optical disks, such as DVD-RW.

ST dual layer phase transition optical recording medium; germanium antimony tellurium alloy dual recording layer optical disk; tin germanium antimony alloy dual recording layer optical disk; optical disk rewritable erase ratio contrast

IT Erasable optical disks

Optical recording materials

(dual-layer phase transition optical recording medium with high erase ratio, contrast, and high-quality information signals)

IT \*\*\*851761-17-6\*\*\*, Antimony 72, germanium 5, indium 2, tellurium 21 (atomic)

RL: TEM (Technical or engineered material use); USES (Uses)

(1st recording layer; dual-layer phase transition optical recording medium with high erase ratio, contrast, and high-quality information signals)

IT 910464-82-3 910464-83-4 910464-84-5

RL: TEM (Technical or engineered material use); USES (Uses)

(2nd recording layer; dual-layer phase transition optical recording medium with high erase ratio, contrast, and high-quality information signals)

L10 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2005:426518 CAPLUS <<LOGINID::20061024>>

DN 142:472661

ED Entered STN: 19 May 2005

TI Two-layer phase-change information recording medium and recording method

IN Iwasa, Hiroyuki; Shinotsuka, Michiaki; Shinkai, Masaru

PA Ricoh Company, Ltd., Japan

SO PCT Int. Appl., 39 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

IC ICM B41M005-26

ICS G11B007-24; G11B007-0045

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

|      | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---|------|----------|-----------------|----------|
| PI   | WO 2005044575   | A1   | 20050519 | WO 2004-JP16139 | 20041029 |
|      | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW |      |          |                 |          |
|      | RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG  |      |          |                 |          |
|      | JP 2005153496   | A2   | 20050616 | JP 2004-153506  | 20040524 |
|      | JP 3679107  | B2   | 20050803 |                 |          |
|      | EP 1683647  | A1   | 20060726 | EP 2004-793240  | 20041029 |
|      | R: DE, ES, FR, GB, IT, NL   |      |          |                 |          |
|      | US 2006233095   | A1   | 20061019 | US 2006-417334  | 20060502 |
| PRAI | JP 2003-376003  | A    | 20031105 |                 |          |
|      | JP 2004-153506  | A    | 20040524 |                 |          |
|      | WO 2004-JP16139   | W    | 20041029 |                 |          |

CLASS

|               | PATENT NO. | CLASS   | PATENT FAMILY CLASSIFICATION CODES |
|---------------|------------|---|------------------------------------|
| WO 2005044575 | ICM        | B41M005-26  |                                    |
|               | ICS        | G11B007-24; G11B007-0045  |                                    |
|               | IPCI       | B41M0005-26 [ICM,7]; G11B0007-24 [ICS,7]; G11B0007-0045 [ICS,7]; G11B0007-00 [ICS,7,C*]   |                                    |
|               | IPCR       | B41M0005-26 [I,C*]; B41M0005-26 [I,A]; G11B0007-00 [I,C*]; G11B0007-0045 [I,A]; G11B0007-24 [I,C*]; G11B0007-24 [I,A]; G11B0007-243 [I,A]; G11B0007-258 [I,A] |                                    |
| JP 2005153496 | IPCI       | B41M0005-26 [ICM,7]; G11B0007-0045 [ICS,7]; G11B0007-00   |                                    |

[ICS,7,C\*]; G11B0007-24 [ICS,7]  
 IPCR B41M0005-26 [I,A]; B41M0005-26 [I,C\*]; G11B0007-00  
 [I,C\*]; G11B0007-0045 [I,A]; G11B0007-24 [I,A];  
 G11B0007-24 [I,C\*]  
 FTERM 2H111/EA03; 2H111/EA04; 2H111/EA12; 2H111/EA23;  
 2H111/EA31; 2H111/EA36; 2H111/FA02; 2H111/FA11;  
 2H111/FA12; 2H111/FA14; 2H111/FA23; 2H111/FA25;  
 2H111/FB04; 2H111/FB05; 2H111/FB06; 2H111/FB08;  
 2H111/FB09; 2H111/FB12; 2H111/FB15; 2H111/FB16;  
 2H111/FB17; 2H111/FB19; 2H111/FB21; 2H111/FB22;  
 2H111/FB23; 2H111/FB27; 2H111/FB28; 2H111/FB29;  
 5D029/HA06; 5D029/JA01; 5D029/JB13; 5D029/JB18;  
 5D029/JB35; 5D029/KB14; 5D029/LB02; 5D029/MA13;  
 5D029/MA14; 5D029/MA27; 5D090/AA01; 5D090/BB05;  
 5D090/BB12; 5D090/CC02; 5D090/CC14; 5D090/DD01;  
 5D090/EE01; 5D090/EE05; 5D090/EE11; 5D090/FF12  
 EP 1683647 IPCI B41M0005-26 [ICM,7]; G11B0007-24 [ICS,7]; G11B0007-0045  
 [ICS,7]; G11B0007-00 [ICS,7,C\*]  
 IPCR B41M0005-26 [I,C\*]; B41M0005-26 [I,A]; G11B0007-00  
 [I,C]; G11B0007-0045 [I,A]; G11B0007-24 [I,C];  
 G11B0007-24 [I,A]; G11B0007-243 [I,A]; G11B0007-258  
 [I,A]  
 US 2006233095 IPCI G11B0003-74 [I,A]; G11B0003-70 [I,A]; G11B0003-00  
 [I,C\*]  
 NCL 369/288.000; 369/094.000

AB The invention relates to a two-layer phase change information recording medium wherein a first recording layer comprises a material represented by the empirical formula:  $Sb.\alpha.1 Te.\beta.1 Ge.\gamma.1 M1.\delta.1$ , and a second recording layer comprises a material represented by the empirical formula:  $Sb.\alpha.2 Te.\beta.2 Ge.\gamma.2 M2.\delta.2$ , wherein each of  $M1$  and  $M2$  is at least one element selected from among  $Ag$ ,  $In$ ,  $Se$ ,  $Sn$ ,  $Al$ ,  $Ti$ ,  $V$ ,  $***Mn***$ ,  $Fe$ ,  $Co$ ,  $Ni$ ,  $Cu$ ,  $Zn$ ,  $Ga$ ,  $Bi$ ,  $Si$ ,  $Dy$ ,  $Pd$ ,  $Pt$ ,  $Au$ ,  $S$ ,  $B$ ,  $C$  and  $P$  and satisfy  $\alpha.1 + \beta.1 + \gamma.1 + \delta.1 = \alpha.2 + \beta.2 + \gamma.2 + \delta.2 = 100$  at. %, 50.  $ltoreq. \alpha.1.ltoreq. 75, 25.ltoreq. \beta.1.ltoreq. 40, 0 < \gamma.1.ltoreq. 10, 0.ltoreq. \delta.1.ltoreq. 10, 60.ltoreq. \alpha.2.ltoreq. 85, 15.ltoreq. \beta.2.ltoreq. 30, 0 < \gamma.2.ltoreq. 10, 0.ltoreq. \delta.2.ltoreq. 10$ , and  $\beta.2 + \gamma.2 < \beta.1 + \gamma.1.ltoreq. \beta.2 + \gamma.2 + 20$ . The above two-layer phase change information recording medium is excellent in the erasure ratio of each layer, exhibits an improved dynamic range, and can achieve the multi-level recording.

ST phase change information recording

IT Erasable optical disks

(phase-change; two-layer phase-change information recording medium and recording method)

IT Optical recording  
(two-layer phase-change information recording medium and recording method)

IT 384829-32-7 \*\*\*479063-02-0\*\*\* \*\*\*717887-71-3\*\*\* 851761-10-9  
 851761-11-0 \*\*\*851761-12-1\*\*\* 851761-13-2 \*\*\*851761-14-3\*\*\*  
 851761-15-4 \*\*\*851761-16-5\*\*\* \*\*\*851761-17-6\*\*\*  
 \*\*\*851761-18-7\*\*\* \*\*\*851761-19-8\*\*\* 851761-20-1  
 \*\*\*851761-21-2\*\*\* \*\*\*851761-22-3\*\*\*

RL: DEV (Device component use); USES (Uses)  
(recording layers in two-layer phase-change information recording medium)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Matsushita Electric Industrial Co Ltd; EP 1187119 A2 2002 CAPLUS
- (2) Matsushita Electric Industrial Co Ltd; JP 2002144736 A 2002 CAPLUS
- (3) Matsushita Electric Industrial Co Ltd; US 20254983 A1 2002
- (4) Mitsubishi Chemical Corp; EP 1117094 A2 2001
- (5) Mitsubishi Chemical Corp; US 200112253 A1 2001
- (6) Mitsubishi Chemical Corp; JP 2001273638 A 2001 CAPLUS
- (7) Ricoh Co Ltd; EP 1296315 A2 2003 CAPLUS
- (8) Ricoh Co Ltd; JP 2003100020 A 2003 CAPLUS
- (9) Ricoh Co Ltd; JP 2003242676 A 2003 CAPLUS
- (10) Ricoh Co Ltd; US 200358763 A1 2003
- (11) Toray Industries Inc; JP 02-112987 A 1990 CAPLUS

L10 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2005:16957 CAPLUS <>LOGINID::20061024>>

DN 142:123261  
ED Entered STN: 09 Jan 2005  
TI Optical information recording medium and recording device  
IN Yamamoto, Hiroki; Naito, Takashi; Shintani, Toshimichi  
PA Japan  
SO U.S. Pat. Appl. Publ., 26 pp.  
CODEN: USXXCO  
DT Patent  
LA English  
IC ICM G11B007-24  
INCL 430270130; 430945000; 428064400  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE     |
|------|----------------|------|----------|-----------------|----------|
| PI   | US 2005003302  | A1   | 20050106 | US 2004-804098  | 20040319 |
|      | JP 2005025848  | A2   | 20050127 | JP 2003-189501  | 20030701 |
| PRAI | JP 2003-189501 | A    | 20030701 |                 |          |

CLASS

|  | PATENT NO.    | CLASS | PATENT FAMILY CLASSIFICATION CODES   |
|--|---------------|-------|--|
|  | US 2005003302 | ICM   | G11B007-24   |
|  |               | INCL  | 430270130; 430945000; 428064400  |
|  |               | IPCI  | G11B0007-24 [ICM, 7]   |
|  |               | IPCR  | G11B0007-24 [I,C*]; G11B0007-24 [I,A]; G11B0007-09 [I,C*]; G11B0007-09 [I,A]; G11B0007-258 [I,A]; G11B0007-26 [I,C*]; G11B0007-26 [I,A]  |
|  |               | NCL   | 430/270.130; 428/064.400; 430/945.000  |
|  |               | ECLA  | G11B007/007G; G11B007/24S4; G11B007/257  |
|  | JP 2005025848 | IPCI  | G11B0007-24 [ICM, 7]; G11B0007-09 [ICS, 7]; G11B0007-26 [ICS, 7]   |
|  |               | IPCR  | G11B0007-09 [I,A]; G11B0007-09 [I,C*]; G11B0007-24 [I,A]; G11B0007-24 [I,C*]; G11B0007-26 [I,A]; G11B0007-26 [I,C*]  |
|  |               | FTERM | 5D029/JA01; 5D029/JB13; 5D029/LB07; 5D029/LC08; 5D029/MA13; 5D029/MA14; 5D029/MA15; 5D029/MA16; 5D029/MA17; 5D118/BA01; 5D118/CD04; 5D121/AA04; 5D121/AA05; 5D121/EE03; 5D121/EE05; 5D121/EE17; 5D121/EE19; 5D121/EE27 |

AB A multilayer optical information recording medium includes optical information recording layers, and dielec. multilayer reflecting layers provided under the optical information recording layers resp. Each of the dielec. multilayer reflecting layers includes: a laminate of low refractive index films and high refractive index films; and a variable refractive index film exhibiting change of refractive index induced by laser beam irradn. Each of the dielec. multilayer reflecting layers is provided so that reflectance of a portion used for reading/writing information by condensed laser beam irradn. is high while transmittance of the other portion is high. It is possible to reduce intensity of laser beam to be irradiated to the medium.

ST optical information recording disk medium multilayer reflecting layer

IT Optical disks

(optical information recording disk comprising multilayer reflecting layers)

IT 178255-68-0, Silicon zinc oxide sulfide (Si0.1Zn0.400.2S0.4)

RL: TEM (Technical or engineered material use); USES (Uses)  
(dielec. layer; optical information recording disk comprising multilayer reflecting layers)

IT 12033-89-5, Silicon nitride, uses

RL: TEM (Technical or engineered material use); USES (Uses)  
(optical information recording disk comprising multilayer reflecting layers)

IT \*\*\*479063-02-0\*\*\*

RL: TEM (Technical or engineered material use); USES (Uses)  
(recording layer; optical information recording disk comprising multilayer reflecting layers)

IT 1306-23-6, Cadmium sulfide, uses 1308-06-1, Cobalt oxide (Co3O4)  
1308-38-9, Chromium Oxide, uses 1309-37-1, Iron Oxide, uses 1313-13-9,  
\*\*\*Manganese\*\*\* Oxide, uses 1313-99-1, Nickel Oxide, uses 1314-13-2,  
Zinc Oxide, uses 1314-61-0, Tantalum Oxide 1314-62-1, Vanadium Oxide,  
uses 1317-61-9, Iron Oxide, uses 7440-22-4, Silver, uses 7440-50-8,

Copper, uses 7440-57-5, Gold, uses 7631-86-9, Silicon Oxide, uses

13463-67-7, Titanium Oxide, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(reflecting layer; optical information recording disk comprising multilayer reflecting layers)

L10 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:841938 CAPLUS <<LOGINID::20061024>>

DN 141:340493

ED Entered STN: 15 Oct 2004

TI Phase changeable optical recording material having initialized phase of controlled orientation

IN Abe, Mikiko; Yuzuhara, Hajime; Deguchi, Hiroshi; Suzuki, Eiko; Miura, Hiroshi

PA Ricoh Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 16 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM B41M005-26

ICS G11B007-24; G11B007-26

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

| PATENT NO.         | KIND | DATE     | APPLICATION NO. | DATE     |
|--------------------|------|----------|-----------------|----------|
| PI JP 2004284024   | A2   | 20041014 | JP 2003-75317   | 20030319 |
| PRAI JP 2003-75317 |      | 20030319 |                 |          |

CLASS

| PATENT NO. | CLASS | PATENT FAMILY CLASSIFICATION CODES |
|------------|-------|------------------------------------|
|------------|-------|------------------------------------|

|               |       |  |
|---------------|-------|--|
| JP 2004284024 | ICM   | B41M005-26   |
|               | ICS   | G11B007-24; G11B007-26   |
|               | IPCI  | B41M0005-26 [ICM,7]; G11B0007-24 [ICS,7]; G11B0007-26 [ICS,7]  |
|               | IPCR  | B41M0005-26 [I,A]; B41M0005-26 [I,C*]; G11B0007-24 [I,A]; G11B0007-24 [I,C*]; G11B0007-26 [I,A]; G11B0007-26 [I,C*]  |
|               | FTERM | 2H111/EA03; 2H111/EA04; 2H111/EA12; 2H111/EA23; 2H111/EA41; 2H111/FA12; 2H111/FA14; 2H111/FA24; 2H111/FB05; 2H111/FB06; 2H111/FB07; 2H111/FB09; 2H111/FB10; 2H111/FB12; 2H111/FB16; 2H111/FB17; 2H111/FB18; 2H111/FB19; 2H111/FB20; 2H111/FB21; 2H111/FB30; 5D029/HA06; 5D029/JA01; 5D029/JB35; 5D029/JC18; 5D029/LA14; 5D029/LB01; 5D029/LB07; 5D029/LB11; 5D121/AA01; 5D121/GG26 |

AB In the material comprising a support with tracks successively coated with 1st protective layer, a recording layer which changes between crystal and amorphous phases, 2nd protective layer, and a reflective layer, the crystal phase of the initialized recording layer with face interval 2.9-3.3 .ANG. and vertical to the support is oriented to have an angle of 30.+-.15.degree. to tangential line of the track. The material shows good recording and reading properties by laser beam.

ST phase change optical recording material crystal phase orientation; germanium antimony tellurium laser sensitive optical recording material

IT Optical recording materials

(erasable; phase changeable optical recording material having initialized phase of controlled orientation)

IT 7429-91-6, Dysprosium, uses 7439-92-1, Lead, uses 7439-96-5, \*\*\*Manganese\*\*\*, uses 7439-97-6, Mercury, uses 7440-22-4, Silver, uses 7440-28-0, Thallium, uses 7440-31-5, Tin, uses 7440-43-9, Cadmium, uses 7440-50-8, Copper, uses 7440-55-3, Gallium, uses 7440-69-9, Bismuth, uses 7440-74-6, Indium, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(antimony-gallium-tellurium layer contg.; phase changeable optical recording material having initialized phase of controlled orientation)

IT 1314-36-9, Yttria, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(metal oxide layer between recording layer and protective layer; phase changeable optical recording material having initialized phase of

controlled orientation)  
 IT 1312-43-2, Indium oxide 1314-13-2, Zinca, uses 1314-23-4, Zirconia,  
 uses 1317-36-8, Lead oxide, uses 1344-28-1, Alumina, uses 7631-86-9,  
 Silica, uses 13463-67-7, Titania, uses 21651-19-4, Tin oxide (SnO)  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (metal oxide layer between recording layer and protective layer; phase  
 changeable optical recording material having initialized phase of  
 controlled orientation)  
 IT \*\*\*773104-42-0\*\*\* \*\*\*773104-43-1\*\*\* 773104-44-2 773104-45-3  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (phase changeable optical recording material having initialized phase  
 of controlled orientation)

L10 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN  
 AN 2004:759249 CAPLUS <<LOGINID::20061024>>  
 DN 141:285883  
 ED Entered STN: 17 Sep 2004  
 TI Phase change type optical recording disk showing excellent overwrite  
 property  
 IN Shinotsuka, Michiaki; Iwasa, Hiroyuki; Shinkai, Masaru  
 PA Ricoh Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 19 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM G11B007-24  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)

FAN.CNT 1  
 PATENT NO. KIND DATE APPLICATION NO. DATE  
 ----- - - - - -  
 PI JP 2004259367 A2 20040916 JP 2003-48692 20030226  
 PRAI JP 2003-48692 20030226

CLASS  
 PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES  
 ----- - - - - -  
 JP 2004259367 ICM G11B007-24  
 IPCI G11B0007-24 [ICM, 7]  
 IPCR G11B0007-24 [I, A]; G11B0007-24 [I, C\*]  
 FTERM 5D029/HA06; 5D029/JA01; 5D029/JB13; 5D029/JB16;  
 5D029/LA14; 5D029/LB03; 5D029/LC06

AB The title optical recording disk comprises 2 Sb-Te recording layers,  
 wherein the interfacial layers show 2.2-2.5 refraction index at 390-420  
 nm. The interfacial layers contain Ti-C-O, Mo-C-O, V-C-O, Zr-C-O, Cr-C-O,  
 Nb-C-O, \*\*\*Mn\*\*\* -C-O, Si-C-O, or Ta-C-O.

ST phase change optical recording disk interfacial layer overwrite property  
 IT Erasable optical disks

(phase change type recording disk showing excellent overwrite property)  
 IT 757242-99-2, Titanium carbide oxide (TiC1.600.4) 757243-05-3, Zirconium  
 carbide oxide (ZrC1.600.4) 757243-10-0, Chromium carbide oxide  
 (CrC1.600.4) 757243-15-5, Niobium carbide oxide (NbC1.600.4)  
 757243-21-3, Tantalum carbide oxide (TaC1.600.4) 757243-27-9, Molybdenum  
 carbide oxide (MoC1.600.4) 757243-31-5, Vanadium carbide oxide  
 (VC1.600.4) 757243-32-6, \*\*\*Manganese\*\*\* carbide oxide (MnC1.600.4)  
 757243-34-8, Silicon carbide oxide (SiC1.600.4)

RL: DEV (Device component use); USES (Uses)  
 (interfacial layer; phase change type recording disk showing excellent  
 overwrite property)

IT 50926-11-9, ITO  
 RL: DEV (Device component use); USES (Uses)  
 (protective coating layer; phase change type recording disk showing  
 excellent overwrite property)  
 IT 648424-57-1 \*\*\*674302-39-7\*\*\*  
 RL: DEV (Device component use); USES (Uses)  
 (recording layer; phase change type recording disk showing excellent  
 overwrite property)

L10 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN  
 AN 2004:372537 CAPLUS <<LOGINID::20061024>>  
 DN 140:383157  
 ED Entered STN: 07 May 2004  
 TI Optical information recording apparatus and medium

IN Yamamoto, Hiroki; Naitou, Takashi

PA Hitachi, Ltd., Japan

SO U.S. Pat. Appl. Publ., 29 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM G11B007-00

INCL 369094000; 369283000  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

|      | PATENT NO.     | KIND | DATE     | APPLICATION NO.  | DATE     |
|------|----------------|------|----------|------------------|----------|
| PI   | US 2004085882  | A1   | 20040506 | US 2003-641097   | 20030815 |
|      | JP 2004152392  | A2   | 20040527 | JP 2002-315906   | 20021030 |
|      | TW 238408      | B1   | 20050821 | TW 2003-92112688 | 20030509 |
|      | NL 1024021     | A1   | 20040506 | NL 2003-1024021  | 20030729 |
|      | NL 1024021     | C2   | 20051220 |                  |          |
|      | KR 2004038616  | A    | 20040508 | KR 2003-57109    | 20030819 |
| PRAI | JP 2002-315906 | A    | 20021030 |                  |          |

CLASS

|  | PATENT NO.    | CLASS | PATENT FAMILY CLASSIFICATION CODES   |
|--|---------------|-------|--|
|  | US 2004085882 | ICM   | G11B007-00   |
|  |               | INCL  | 369094000; 369283000   |
|  |               | IPCI  | G11B0007-00 [ICM, 7]   |
|  |               | IPCR  | G11B0007-00 [I,C*]; G11B0007-005 [I,A]; G11B0007-24 [I,C*]; G11B0007-24 [I,A]; G11B0007-254 [I,A]; G11B0007-257 [I,A]  |
|  |               | NCL   | 369/094.000; 369/283.000   |
|  |               | ECLA  | G11B007/24   |
|  | JP 2004152392 | IPCI  | G11B0007-24 [ICM, 7]; G11B0007-005 [ICS, 7]; G11B0007-00 [ICS, 7, C*]  |
|  |               | IPCR  | G11B0007-24 [I,A]; G11B0007-24 [I,C*]  |
|  |               | FTERM | 5D029/LA14; 5D029/LA15; 5D029/LA16; 5D029/LA17; 5D029/LA19; 5D029/LB01; 5D029/LB07; 5D029/LB11; 5D029/LC01; 5D029/LC05; 5D029/MA09; 5D029/MA39; 5D090/AA01; 5D090/BB14; 5D090/BB16; 5D090/CC04; 5D090/CC14; 5D090/DD02; 5D090/KK20 |
|  | TW 238408     | IPCI  | G11B0007-24 [ICS, 7]   |
|  |               | IPCR  | G11B0007-00 [I,C*]; G11B0007-24 [I,C*]; G11B0007-005 [I,A]; G11B0007-24 [I,A]; G11B0007-254 [I,A]; G11B0007-257 [I,A]  |
|  | NL 1024021    | IPCI  | G11B0007-24 [ICM, 7]; G11B0007-24 [ICS, 7]   |
|  |               | IPCR  | G11B0007-00 [I,C*]; G11B0007-005 [I,A]; G11B0007-24 [I,C*]; G11B0007-24 [I,A]; G11B0007-254 [I,A]; G11B0007-257 [I,A]  |
|  |               | ECLA  | G11B007/24   |
|  | KR 2004038616 | IPCI  | G11B0007-24 [ICM, 7]   |

AB An optical information recording medium includes a recording layer for recording optical information, a plurality of laminated layers, and a substrate for supporting those layers, while a beam of a specific wavelength is being radiated, a light absorption peak is shifted to a longer or a shorter wavelength side than the peak located before said beam radiation, realizing a high S/N ratio and a high recording d. of the medium. The invention provides RAM and ROM optical disks with improved S/N ratio by having certain dielec. materials in super-resoln. film (light-condensing layer) of disks.

ST optical information DVD recording method medium RAM ROM disk

IT Memory devices

(RAM (random access); optical information recording app. and optical RAM and ROM disks comprising dielec. material in light-condensing layers)

IT Optical ROM disks

Optical recording

Optical recording materials

(optical information recording app. and optical RAM and ROM disks comprising dielec. material in light-condensing layers)

IT 1306-24-7, Cadmium selenide, uses 1308-06-1, Cobalt oxide (Co3O4)  
1308-38-9, Chromium oxide, uses 1309-37-1, Iron oxide, uses 1313-13-9,  
\*\*\*Manganese\*\*\* oxide, uses 1313-99-1, Nickel oxide, uses 1314-62-1,  
Vanadium oxide, uses 1317-61-9, Iron oxide, uses 7440-22-4, Silver,

uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7631-86-9,  
 Silica, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (dielec. layer; optical information recording app. and optical RAM and  
 ROM disks comprising dielec. material in light-condensing layers)  
 IT 178255-68-0, Silicon zinc oxide sulfide (Si0.1Zn0.400.2S0.4)  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (optical information recording app. and optical RAM and ROM disks  
 comprising dielec. material in light-condensing layers)  
 IT \*\*\*479063-02-0\*\*\*  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (recording layer; optical information recording app. and optical RAM  
 and ROM disks comprising dielec. material in light-condensing layers)

L10 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN  
 AN 2004:351494 CAPLUS <<LOGINID::20061024>>  
 DN 140:365982  
 ED Entered STN: 30 Apr 2004  
 TI Sputtering target made of phase change material and manufacture of the  
 target  
 IN Kawaguchi, Yukio; Shinkai, Hiroshi; Inoue, Hiroyasu; Hirata, Hideki;  
 Takasaki, Hiroshi  
 PA TDK Corporation, Japan  
 SO Jpn. Kokai Tokkyo Koho, 11 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM B41M005-26  
 ICS B22F003-10; C22C012-00; C22C013-00; C22C014-00; C22C016-00;  
 C22C018-00; C22C021-00; C22C022-00; C22C027-02; C22C027-06;  
 C22C028-00; C23C014-34; G11B007-26  
 CC 75-1 (Crystallography and Liquid Crystals)  
 Section cross-reference(s): 56, 74

FAN.CNT 1  
 PATENT NO. KIND DATE APPLICATION NO. DATE  
 ----- ----- ----- -----  
 PI JP 2004130541 A2 20040430 JP 2002-294942 20021008  
 PRAI JP 2002-294942 20021008

CLASS

| PATENT NO.    | CLASS | PATENT FAMILY CLASSIFICATION CODES   |
|---------------|-------|--|
| JP 2004130541 | ICM   | B41M005-26   |
|               | ICS   | B22F003-10; C22C012-00; C22C013-00; C22C014-00;<br>C22C016-00; C22C018-00; C22C021-00; C22C022-00;<br>C22C027-02; C22C027-06; C22C028-00; C23C014-34;<br>G11B007-26  |
|               | IPCI  | B41M0005-26 [ICM,7]; B22F0003-10 [ICS,7]; C22C0012-00<br>[ICS,7]; C22C0013-00 [ICS,7]; C22C0014-00 [ICS,7];<br>C22C0016-00 [ICS,7]; C22C0018-00 [ICS,7]; C22C0021-00<br>[ICS,7]; C22C0022-00 [ICS,7]; C22C0027-02 [ICS,7];<br>C22C0027-06 [ICS,7]; C22C0027-00 [ICS,7,C*];<br>C22C0028-00 [ICS,7]; C23C0014-34 [ICS,7]; G11B0007-26<br>[ICS,7]   |
|               | IPCR  | B22F0003-10 [I,A]; B22F0003-10 [I,C*]; B41M0005-26<br>[I,A]; B41M0005-26 [I,C*]; C22C0012-00 [I,A];<br>C22C0012-00 [I,C*]; C22C0013-00 [I,A]; C22C0013-00<br>[I,C*]; C22C0014-00 [I,A]; C22C0014-00 [I,C*];<br>C22C0016-00 [I,A]; C22C0016-00 [I,C*]; C22C0018-00<br>[I,A]; C22C0018-00 [I,C*]; C22C0021-00 [I,A];<br>C22C0021-00 [I,C*]; C22C0022-00 [I,A]; C22C0022-00<br>[I,C*]; C22C0027-00 [I,C*]; C22C0027-02 [I,A];<br>C22C0027-06 [I,A]; C22C0028-00 [I,A]; C22C0028-00<br>[I,C*]; C23C0014-34 [I,A]; C23C0014-34 [I,C*];<br>G11B0007-26 [I,A]; G11B0007-26 [I,C*] |
|               | FTERM | 2H111/EA03; 2H111/EA04; 2H111/EA23; 2H111/EA39;<br>2H111/FA01; 2H111/FB05; 2H111/FB09; 2H111/FB12;<br>2H111/FB20; 2H111/GA03; 4K018/AA06; 4K018/AA15;<br>4K018/AA40; 4K018/KA29; 4K029/BB00; 4K029/BC00;<br>4K029/BC07; 4K029/BD00; 4K029/DC01; 4K029/DC04;<br>4K029/DC09; 5D121/AA01; 5D121/EE03; 5D121/EE09;<br>5D121/EE10; 5D121/EE11; 5D121/EE14; 5D121/EE15   |

AB The target is for manuf. of a phase change optical recording layer in a

memory device by sputtering. The target consists of a matrix phase contg. Sb and Te and phases in which RM alloy particles are dispersed (R = rare earth metal, \*\*\*Mn\*\*\*, Cr, Ti, Zr, Hf, V, Nb, Zn, Al, and/or Sn; M is elements except Sb, Te, and R). The target is manufd. by mixing of powd. RM alloy and powd. material contg. Sb and Te, shaping, and sintering. The target provides the thermally stable recording layer showing no difference from the compn. of the target in high crystn. rate.

ST sputtering target phase change memory device; antimony tellurium matrix ceramic sputtering target; powd alloy dispersed phase sintered target

IT Sintering

(in manuf. of sputtering target made of phase change material for manuf. of optical memory device)

IT Atomizing (spraying)

(of alloy; in manuf. of sputtering target made of phase change material for manuf. of optical memory device)

IT Optical memory devices

Optical recording materials

Phase change materials

Sputtering targets

(sputtering target made of phase change material for manuf. of optical memory device)

IT 12065-30-4

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)

(for manuf. of sputtering target made of phase change material for manuf. of optical memory device)

IT 681816-76-2 681816-77-3

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(recording layer; sputtering target made of phase change material for manuf. of optical memory device)

IT \*\*\*681816-74-0\*\*\* \*\*\*681816-75-1\*\*\*

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(target; sputtering target made of phase change material for manuf. of optical memory device)

L10 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:200144 CAPLUS <<LOGINID::20061024>>

DN 140:243654

ED Entered STN: 12 Mar 2004

TI Optical information recording medium

IN Ohno, Takashi; Komatsu, Masao; Kubo, Masae; Mizuno, Masaaki; Nobukuni, Natsuko; Horie, Michikazu; Kunitomo, Haruo

PA Mitsubishi Chemical Corporation, Japan

SO Eur. Pat. Appl., 6 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM G11B007-00

ICS G11B007-24

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 2

|      | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---|------|----------|-----------------|----------|
| PI   | EP 1396851 X  | A2   | 20040310 | EP 2003-27479   | 19980325 |
|      | EP 1396851  | A3   | 20040317 |                 |          |
|      | R: DE, IE   |      |          |                 |          |
|      | EP 867868   | A2   | 19980930 | EP 1998-105437  | 19980325 |
|      | EP 867868   | A3   | 19991006 |                 |          |
|      | EP 867868   | B1   | 20040908 |                 |          |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO |      |          |                 |          |
|      | JP 2004164849   | A2   | 20040610 | JP 2004-27814   | 20040204 |
| PRAI | JP 1997-75531   | A    | 19970327 |                 |          |
|      | EP 1998-105437  | A3   | 19980325 |                 |          |
|      | JP 1998-74132   | A3   | 19980323 |                 |          |

CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

EP 1396851 ICM G11B007-00  
 ICS G11B007-24  
 IPCI G11B0007-00 [ICM, 7]; G11B0007-24 [ICS, 7]  
 ECLA G11B007/24; G11B007/243; G11B007/258; G11B007/24S  
 EP 867868 IPCI G11B0007-00 [ICM, 6]; G11B0007-24 [ICS, 6]  
 IPCR G11B0007-00 [I, C\*]; G11B0007-0045 [I, A]; G11B0007-005  
 [N, A]; G11B0007-0055 [I, A]; G11B0007-006 [I, A];  
 G11B0007-007 [N, A]; G11B0007-007 [N, C\*]; G11B0007-125  
 [I, A]; G11B0007-125 [I, C\*]; G11B0007-24 [I, A];  
 G11B0007-24 [I, C\*]; G11B0007-243 [I, A]; G11B0007-258  
 [I, A]  
 ECLA G11B007/0045P; G11B007/0055P; G11B007/006;  
 G11B007/125C; G11B007/24; G11B007/243; G11B007/258  
 JP 2004164849 IPCI G11B0007-24 [ICM, 7]  
 IPCR G11B0007-24 [I, A]; G11B0007-24 [I, C\*]  
 FTERM 5D029/HA06; 5D029/HA07; 5D029/JA01; 5D029/JB18;  
 5D029/JB35; 5D029/JB47; 5D029/KC06; 5D029/LA14;  
 5D029/LA15; 5D029/LB07; 5D029/LC06; 5D029/MA13;  
 5D029/MA14; 5D029/MA17; 5D029/WA02; 5D029/WB11;  
 5D029/WB17; 5D029/WC01

AB Disclosed is an optical information recording medium for recording, retrieving and erasing mark length-modulated amorphous marks, which comprises a substrate (1), and a lower protective layer (2), a phase-change recording layer (3), an upper protective layer (4) and a reflective layer (5) having a thickness of 40-300 nm and a vol. resistivity of 20-150 n.OMEGA.-m, formed in this sequence on the substrate, wherein the phase-change recording layer (3) is a thin film of an alloy of  $Mw(SbzTe1-z)1-w$  (  $0.1 \leq w \leq 0.2$  ,  $0.5 \leq z \leq 0.9$  ;  $M = In, Ga, Zn, Sn, Si, Cu, Au, Ag, Pd, Pt, Pb, Cr, Co, O, N, S, Se, Ta, Nb, V, Bi, Zr, Ti, \text{***Mn***}, Mo, Rh$  and rare earth elements), and wherein the reflective layer (5) is made of an alloy of Al, inclusive of pure Al, having an impurity content of not more than 2 at. % or an alloy of Au, inclusive of pure Au, having an impurity content of not more than 5 at. %. The object of the present invention is to provide a phase-change recording medium whereby the margins for the recording linear velocity and the writing power are improved to a large extent.

ST optical information recording medium phase change disk rewritable  
 IT Erasable optical disks

(optical information recording medium)

IT 1314-98-3, Zinc sulfide, uses 7440-22-4, Silver, uses 7440-57-5, Gold, uses 7631-86-9, Silica, uses 121946-26-7, Aluminum 99, tantalum 1 (atomic) 160194-51-4, Aluminum 99.5, tantalum 0.5 (atomic) 178255-68-0, Silicon zinc oxide sulfide ( $Si_0.1Zn_0.4O_0.2S_0.4$ ) 204707-89-1 213685-67-7 213685-70-2 \*\*\*213685-72-4\*\*\* 668437-50-1 668437-51-2

RL: TEM (Technical or engineered material use); USES (Uses)  
 (optical information recording medium)

L10 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2002:708690 CAPLUS <<LOGINID::20061024>>

DN 137:239814

ED Entered STN: 18 Sep 2002

TI Phase-change optical recording disk for multi-speed recording or CAV recording, and its recording method

IN Shimofuku, Hikaru; Nakamura, Yuki; Yamada, Katsuyuki

PA Ricoh Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM B41M005-26

ICS G11B007-0045; G11B007-125; G11B007-24

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 56

FAN.CNT 1

| PATENT NO.         | KIND | DATE     | APPLICATION NO. | DATE     |
|--------------------|------|----------|-----------------|----------|
| PI JP 2002264515   | A2   | 20020918 | JP 2001-69165   | 20010312 |
| PRAI JP 2001-69165 |      | 20010312 |                 |          |

## CLASS

## PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

JP 2002204515 ICM B41M005-26  
 ICS G11B007-0045; G11B007-125; G11B007-24  
 IPCI B41M0005-26 [ICM,7]; G11B0007-0045 [ICS,7]; G11B0007-00  
 [ICS,7,C\*]; G11B0007-125 [ICS,7]; G11B0007-24 [ICS,7]  
 IPCR B41M0005-26 [I,C\*]; B41M0005-26 [I,A]; G11B0007-00  
 [I,C\*]; G11B0007-0045 [I,A]; G11B0007-125 [I,C\*];  
 G11B0007-125 [I,A]; G11B0007-24 [I,C\*]; G11B0007-24  
 [I,A]; G11B0007-243 [I,A]

AB The optical disk has a recording layer contg. Ge, In, Sb, and Te of at. amt. satisfying Ge.alpha.In.beta.Sb.gamma.Te.delta. (.alpha., .beta., .gamma., .delta. = at. ratio; .alpha. + .beta. + .gamma. + .delta. = 100; .alpha. = 0.1-7; .beta. = 1-9; .gamma. = 61-75; .delta. = 22-30). The recording layer may further contain .gtoreq.1 selected from Ga, Zn, Sn, Si, Pb, Co, Cr, Cu, Ag, Au, Pd, Pt, S, Se, Ta, Nb, V, Bi, Zr, Ti, Al, \*\*\*Mn\*\*\*, Mo, Rh, C, N, and O. Its PWM (pulse-width modulation) recording is carried out while controlling its duty cycle in a pulse train to achieve multi-speed recording and CAV (const. angular velocity) recording. The optical disk shows high performance at high-speed recording and rewriting.

ST optical disk antimony tellurium germanium indium alloy; phase change optical disk multispeed recording; CAV recording phase change optical disk; PWM recording phase change optical disk

IT Erasable optical disks

Optical recording

(phase-change optical recording disk contg. Sb-Te-Ge-In alloy recording layer for multi-speed recording or CAV recording)

IT 7727-37-9, Nitrogen, uses

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(additive in Sb-Te-Ge-In alloy recording layer; phase-change optical recording disk contg. Sb-Te-Ge-In alloy recording layer for multi-speed recording or CAV recording)

IT 7429-90-5, Aluminum, uses 7439-92-1, Lead, uses 7439-96-5, \*\*\*Manganese\*\*\*, uses 7439-98-7, Molybdenum, uses 7440-03-1, Niobium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-44-0, Carbon, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-55-3, Gallium, uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-69-9, Bismuth, uses 7704-34-9, Sulfur, uses 7782-44-7, Oxygen, uses 7782-49-2, Selenium, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(additive in Sb-Te-Ge-In alloy recording layer; phase-change optical recording disk contg. Sb-Te-Ge-In alloy recording layer for multi-speed recording or CAV recording)

IT 459867-03-9 459867-04-0 \*\*\*459867-05-1\*\*\* \*\*\*459867-06-2\*\*\*

459867-07-3 459867-08-4

RL: DEV (Device component use); USES (Uses)

(recording layer; phase-change optical recording disk contg. Sb-Te-Ge-In alloy recording layer for multi-speed recording or CAV recording)

IT \*\*\*459867-09-5\*\*\*

RL: TEM (Technical or engineered material use); USES (Uses)

(recording layer; phase-change optical recording disk contg. Sb-Te-Ge-In alloy recording layer for multi-speed recording or CAV recording)

L10 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2002:708688 CAPLUS <<LOGINID::20061024>>

DN 137:255426

ED Entered STN: 18 Sep 2002

TI Phase-change optical random-access-memory medium

IN Shinozuka, Michiaki

PA Ricoh Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent  
 LA Japanese  
 IC ICM B41M005-26  
 ICS G11B007-24  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 56

FAN.CNT 1

| PATENT NO.         | KIND | DATE     | APPLICATION NO. | DATE     |
|--------------------|------|----------|-----------------|----------|
| PI JP 2002264512   | A2   | 20020918 | JP 2001-66853   | 20010309 |
| PRAI JP 2001-66853 |      | 20010309 |                 |          |

CLASS

| PATENT NO.    | CLASS  | PATENT FAMILY CLASSIFICATION CODES |
|---------------|--|------------------------------------|
| JP 2002264512 | ICM B41M005-26<br>ICS G11B007-24<br>IPCI B41M0005-26 [ICM, 7]; G11B0007-24 [ICS, 7]<br>IPCR B41M0005-26 [I, C*]; B41M0005-26 [I, A]; G11B0007-24<br>[I, C*]; G11B0007-24 [I, A]; G11B0007-243 [I, A] |                                    |

AB The memory medium comprises, successively from the bottom, a lower substrate, a lower protective layer, a recording layer, a upper protective layer, a heat-release layer, a resin layer, a bonding layer, and a upper substrate; wherein the recording layer is made of a substance expressed by GeyAzBw(SbxTe1-x)1-w-y-z (A = Zn, Pb, Sn, Mg, \*\*\*Mn\*\*\* ; B = Ag, In; x = 0.65-0.80, w = 0.01-0.15, y = 0.01-0.10, z = 0.01-0.10). The memory medium, using an alloy having a similar compn. to that of eutectic Sb-Te compn., shows high storage stability under high-temp. and high-humidity environment.

ST phase change optical RAM disk antimony tellurium alloy; germanium tellurium antimony alloy optical RAM disk

IT Erasable optical disks

(RAM, phase-change; phase-change optical RAM medium using Te-Sb-Ge based alloy as recording layer)

IT 460089-73-0 \*\*\*460089-75-2\*\*\* \*\*\*460089-76-3\*\*\*

\*\*\*460089-77-4\*\*\* \*\*\*460089-78-5\*\*\*

RL: DEV (Device component use); USES (Uses)

(recording layer; phase-change optical RAM medium using Te-Sb-Ge based alloy as recording layer)

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(FILE 'HOME' ENTERED AT 13:51:41 ON 24 OCT 2006)

FILE 'REGISTRY' ENTERED AT 13:51:54 ON 24 OCT 2006

|    |                        |
|----|------------------------|
| L1 | 2437 S SB 58-74/MAC    |
| L2 | 5054 S GE 2-10/MAC     |
| L3 | 1497 S TE 12-25/MAC    |
| L4 | 2643 S TE 10-35/MAC    |
| L5 | 310 S L1 AND L2 AND L4 |
| L6 | 18 S L5 AND MN/MAC     |

FILE 'CAPLUS' ENTERED AT 13:54:01 ON 24 OCT 2006

|     |                               |
|-----|-------------------------------|
| L7  | 136 S LS                      |
| L8  | 7 S L6                        |
| L9  | 12 S L5 AND (MN OR MANGANESE) |
| L10 | 10 S L9 NOT L8                |

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| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|----------------------|------------------|---------------|
| FULL ESTIMATED COST  | 56.55            | 82.32         |

| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
|--|------------------|---------------|
| CA SUBSCRIBER PRICE                        | -12.75           | -12.75        |

STN INTERNATIONAL LOGOFF AT 13:54:52 ON 24 OCT 2006